APPLICATION FOR UNITED STATES LETTERS PATENT

FOR

METHOD AND APPARATUS FOR SIMPLIFIED

ACCESS TO ONLINE SERVICES

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Express Mail Label No.: EL743033835US
Date of Deposit: January 2, 2001

METHOD AND APPARATUS FOR SIMPLIFIED ACCESS TO ONLINE SERVICES

FIELD OF THE INVENTION

The present invention relates to the field of information systems. More specifically, the present invention relates to simplified access to online services, including access with roaming capabilities.

BACKGROUND OF THE INVENTION

The Internet is a well-known collection of public and private data communication and multimedia networks that operate using common protocols to form a world wide network of networks. Recently there has been an explosion in the availability of online services, e.g., online commerce sites, email sites, news information sites, and so forth, all reachable over the Internet. This rapid growth is due, in part, to the availability of fast, reliable and affordable computing device systems and the general simplification of networking hardware and configuration. Thus, consumers and businesses alike now have access to hardware that makes effective online commerce commercially practicable.

To access these online services, an online service provider typically sets up a home page (e.g., "web site") on the World Wide Web, which is a logical overlay of the Internet. Simply, web sites are machines located someplace within the Internet with traditional naming conventions for the machines, e.g., named WWW, and holding themselves available to interact using standard protocols such as Hypertext Transfer Protocol (HTTP), and programming languages or environments such as Hypertext

Transfer Protocol HTML, XML, Java, JavaScript, Java Beans, ActiveX, Visual Basic, or the like.

To access a service via a web site, a user executes a "browser," such as the Internet Explorer, Netscape Navigator, or other network aware application program that is configured to communicate with an online service provider's web site. The user locates a particular online service provider, and proceeds to logon to the web site (or equivalent) to access and utilize the service. At this point, the user must enter their logon identification (Id), password, and other data sufficient to identify the user and allow access of the user to the service.

As the user accesses several services, the user is required to maintain several logon identification and passwords. For example, a user may request to access several services such as Hotmail® for email services, HomeGrocer.com® for home delivered groceries, Washington Mutual Bank™ for online banking, and so forth.

Often times, in order to keep track of the different logon Ids and passwords, a user may try to use a common logon Id, such as "Justin", and password for several services. However, more than likely, a logon Id for one service is rejected by another service because of the likelihood that some other user would have the same logon Id is high unless one constructs an arbitrary user Id. In that case, the user Id is difficult to remember and user unfriendly. Depending on the number of services utilized by the user, the user may be required to have and manage numerous different logon Ids and passwords.

One known method for managing the several different logon Ids and passwords is to store this information within the computer or device for accessing the various

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services. However, because this information is stored within the device, if the device is altered and/or loses its memory or the user roams to different devices, the user is required to repeat the process of setting up the several logon Ids and passwords in order to access the different services again. Further, the user would not have access to his/her configuration information.

Thus, what is needed is an environment that provides a user the ability to access online services requiring logon Ids and passwords and roam from one device to another without having to manage several logon Ids and passwords, nor several sets of configuration information.

BRIEF DESCRIPTION OF DRAWINGS

The present invention is illustrated by way of example and not by way of limitation in the figures of the accompanying drawings, in which the like references indicate similar elements and in which:

Figure 1 illustrates a user **100** accessing several online services through a network **104**, in accordance with one embodiment of the invention;

Figure 2 illustrates an online service provider utilized by a user to access several online services without having to provide logon identifications and passwords for each of the online service, in accordance with one embodiment of the invention;

Figures 3a and **3b** illustrate an alternate embodiment of the invention where one or more users from selected ones of different clients may access and utilize one or more online services through an online service provider (i.e. with roaming capability) without having to manage several logon identifications and passwords, and configurations, in accordance with the invention;

Figure 4 is a flow chart according to one embodiment of the invention, illustrating a client subscribing with an online service provider for accessing one or more online services without the need for managing several logon identifications and passwords, and configurations, with the roaming capability;

Figure 5 illustrates the operational flow of the relevant aspects of the online service provider **102** facilitating access to online services and roam from one device to another without having to manage several logon identifications and passwords, and configurations; and

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Figure 6 illustrates an example server suitable for use for online service provider **102** of **Fig. 1**, in accordance with one embodiment.

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DETAILED DESCRIPTION OF THE INVENTION

In the following description, various aspects of the invention will be described. However, it will be apparent to those skilled in the art that the invention may be practiced with only some or all aspects of the invention. For purposes of explanation, specific numbers, materials and configurations are set forth in order to provide a thorough understanding of the invention. However, it will also be apparent to one skilled in the art that the invention may be practiced without the specific details. In other instances, well known features are omitted or simplified in order not to obscure the invention.

Parts of the description will be presented using terms such as end-user interfaces, buttons, and so forth, commonly employed by those skilled in the art to convey the substance of their work to others skilled in the art. Parts of the description will be presented in terms of operations performed by a computing device, using terms such as submitting, requesting, selecting, confirming and so forth. As well understood by those skilled in the art, these quantities and operations take the form of electrical, magnetic, or optical signals capable of being stored, transferred, combined, and otherwise manipulated through mechanical and electrical components of a digital system. The term digital system includes general purpose as well as special purpose computing machines, systems, and the like, that are standalone, adjunct or embedded.

Various operations will be described in turn in a manner that is most helpful in understanding the invention, however, the order of description should not be construed as to imply that these operations are necessarily order dependent. Furthermore, the

phrase "in one embodiment" will be used repeatedly, however the phrase does not necessarily refer to the same embodiment, although it may.

In various embodiments of the invention, a user is able to access online services requiring logon configurations and roam from one device to another without having to manage several logon configurations.

Figure 1 illustrates a user **100** accessing several online services through a network **104**, in accordance with one embodiment of the invention. In **Fig. 1**, the user **100** is in communication, via a client **101** with a network **104**. Also attached to the network **104** is an online service provider **102** to provide online services, such as an unique email address service **110** (U.S. Patent Application serial no. 09/504,236) and billing masking service **111** (U.S. Patent Application serial no. 09/553,068).

It is assumed that the client **101** comprises a computing device, such as a personal computer, which operates on behalf of the user **100** (a subscriber to online service provider **102**). In alternate embodiments, the client **101** may be incorporated into an electronic card, a telephone, a personal digital assistant (PDA), a portable audio device, a portable audiovisual device, a cellular telephone, a key-chain dongle, or within an automobile or other transportation device.

Also shown in **Fig. 1**, the online service provider **102** is in communication with the user **100**, via the client **101**, through the network **104**, in accordance with the invention. The user **100** subscribes to the online service provider **102**, via the client **101**, through any number of subscription processes known in the art. The user **100** may be charged a fee for allowing the user to access the online services **110-111**. This subscription data is received by the online service provider **102**, where the online

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service provider **102** is configured to allow the user **100** to access several online services **110-111** without having to manage a logon Id and password pair. Simplified access and utilization of the online services **110-111** is facilitated by the online service provider **102** associating an identifier with the user **100** and his/her subscribed online services **110-111**, for example, a globally unique identifier (GUID), in accordance with the invention. Generation of identifiers such as GUIDs, which may involve adding a date and time to a serial number of a device in a client, is known, and accordingly, will not be discussed further. As a result, a user is able to access several online services through an online service provider without having to manage a logon Id and password pair.

Moreover, the invention provides an approach to allow the configuration information (such as the user's subscribed online services and the user's preference settings) of the user to be available, even if the user accesses the online service from different devices (to be described more fully below).

Figure 2 illustrates an online service provider utilized by a user to access several online services without having to provide logon Id and password, in accordance with one embodiment of the invention. In the one embodiment illustrated in **Fig. 2**, in order to subscribe with the online service provider **102**, the user **100** communicates with a web site **201** of the online service provider **102** through a browser application program **202** of the client **101**.

The subscription data may include user information such as name, address, phone number, and the various online services (such as the unique email address service, billing masking service) the user is interested in. As the user **100** subscribes to

these online services with the online service provider **102**, the web site **201** of the online service provider **102** generates an identifier corresponding to the user **100**, for example, a GUID **203** associated with the client **101** and the user **100**. The subscription data and the GUID **203** is received at the online service provider **102**. Furthermore, the web site of the service provider **102** deposits the GUID **203** within the client **101**. Depositing of the GUID **203** within the client **101** may be in any form known in the art such as, but not limited to, a "cookie" **205** stored on the browser application program **202** of the client **101**. Subsequently, when the user **100** communicates with the web site **201** of the online service provider **102** through the browser application program **202** (such as Internet Explorer) with the deposited GUID **203**, the online service provider **102** may be provided with the GUID **203**.

Once the user **100** subscribes to the various services of the online service provider **102**, the online service provider **102** associates the received GUID **203** with the user **100**, which in turn associates GUID **203** with the one or more subscribed online services **110-111**. The number of online services **110-111** associated with the GUID **203** will depend upon the number of online services the user selects to subscribe, for example, the user **100** may select to subscribe to both online services **110-111** shown, in which case, the online service provider **102** will associate the GUID **203** with user **100** and both of the online services **110-111**.

Illustrated in **Fig. 2**, is a data structure suitable for use to store data for facilitating access to several online services by the online service provider **102**. The data structure may be a table **210** including a number of columns **212-214** for storing various information associated with the user **100**, such as but not limited to, a user's

subscription information **212**, a GUID of a client **211**, and the online services that a user

has selected to access through the online service provider **214**. As shown in table **210**,

the GUID **203** is associated with the user and his/her selected services **110-111**.

The table **210** is illustrated as a single table for ease of understanding. As those

skilled in the art will appreciate, a data structure involving multiple tables as well as

other non-tabular data structures may be employed for storing various data regarding

user information.

As a result, when the user requests access to an online service by

communicating with the web site **201** of the online service provider **102** through the

browser application program **202** of the client **101**, the online service provider **102**,

receives the deposited GUID **203**, e.g., within the "cookie" **205** at the client **101**, and

determines if the received GUID **203** is associated with a subscribed user and what the

subscribed service(s) are. If the received GUID **203** is associated with a subscribed

user, the online service provider provides access to all of the subscribed online services

110-111 associated with the GUID **203** without requiring the user to provide a logon Id

and password.

The online service provider **102** associates the GUID **203** of the user **100** with

any number of online services **110-111** depending upon the online services selected by

the user **100**. Three online services are shown in **Fig. 2**; however, it should be

appreciated by those skilled in the art that the number of online services may be any

number of online services, which an online service provider may provide.

In **Fig. 2**, having previously subscribed with the online service provider **102**, the

user **100** communicates with the web site **201** of the online service provider **102** through

the browser application program **202** on the client **101**. In turn, the online service

provider **102** receives the GUID **203** from the client **101** and facilitates access to the

online services **110-111** by matching the received GUID **203** with the online services

associated with the GUID **203**.

As a result, under the invention, a user is not required to manage a logon Id and

password pair in order to utilize and access several online services.

Figures 3a and **3b** illustrate an alternate embodiment of the invention where one

or more users from selected ones of different clients may access and utilize one or

more online services through an online service provider without having to manage logon

Id and password pairs, in accordance with the invention. In the illustrated embodiment,

because an identifier, such as a GUID, is associated with the online service(s) selected

by the user(s), one or more users may access one or more online services without

regard for a particular client, i.e., roaming capability is provided to the one or more users

allowing the access and utilization of one or more services from any client in any

location.

In **Fig. 3a**, a first user **300** and a second user **305** are in communication with the

online service provider **102** through the network **104**. Also shown in **Fig. 3a**, are a first

client **301** and a second client **306**, each of which may be in different locations. Also

shown in **Fig. 3a**, is an email service provider **310** in communication, through the

network **104**, with the online service provider **102** and the first and second users **300**

and **305** through their respective first and second clients **301** and **306**. The email

service provider may be any email service provider such as, but not limited to,

Hotmail®. The second user **305** may or may not be in communication with the first user

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300. Additionally, as discussed with respect to **Fig. 2**, since the online service provider **102** offers several online services **110-111**, the first user **300** and the second user **305** may select to access different online services **110-111**, for example, the first user **300** may select billing masking service **111**, while the second user **305** may select both services **110-111**.

As discussed with respect to **Fig. 2**, the first user **300** and the second user **305** subscribe with the online service provider **102** via browser application programs **304** included within each client. In the embodiment shown in **Fig. 3a**, the first user **300** fills in the fields of the web site **350** of the online service provider **102** to subscribe with the online service provider **102**. Shown in the embodiment of **Fig. 3a**, the online service provider **102** determines if a request for roaming capability is received from any of the users by detecting whether or not the roaming request field **351** is filled in by the user(s). Shown in **Fig. 3a**, the roaming request field **351** is a check box; however, it should be appreciated by those skilled in the art that the field may be any type of field to be filled in known in the art.

In **Fig. 3a**, the online service provider **102** receives the request for roaming capability from the first user **300**, and as will be described in further detail below, the online service provider **102** facilitates the roaming capability for the first user **300** by utilizing the GUID of the first client **301**, in accordance with the invention.

As shown in **Fig. 3a**, the online service provider **102** receives the subscription data from the first user **300** and the second user **305**. Included within the subscription data is a first GUID **320** corresponding to the first client **301** and a second GUID **321** corresponding to the second client **306**. Included within the request for roaming

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capability from the first user **300**, is information regarding the subscribed services utilized by the first user **300**.

As discussed with respect to **Fig. 2**, included within the online service provider is a data structure suitable for use to store data associated with facilitating access to several online services by the online service provider **102**. Here again, the data structure may be a table **330** including a number of columns **331-335** for storing various information associated with one or more users. In particular, a column for a request of roaming capability **334** and a column for email addresses **335** associated with request for roaming capability column **334**.

Shown in **Fig. 3a**, is a GUID column **332** corresponding to one or more users, with each user having a different GUID. Additionally, online service columns **333** for the online services selected by the one or more users is shown corresponding to one or more users. As shown in table **330**, the online service provider **102** associates the first GUID **320** with the billing masking service **111**, selected by the first user **300**, and the online service provider **102** associates the second GUID **321** with both of the online services **110-111**, selected by the second user **305**. Even though two users are shown, it should be appreciated by those skilled in the art that the number of users and GUIDs may be several according to the number of users subscribed with the online service provider.

In order to facilitate roaming capability of the first user **300** utilizing the GUIDs, the online service provider **102** sends the first GUID **320** from the GUID column **332** corresponding to the first user **300**, along with a uniform resource locator (URL) of the online service provider **102** to connect to the web site **201** of the online service provider

102, to the email address **345** (e.g., a Hotmail® email account) specified by the first

user **300** in email address column **335**.

Referring now to **Fig. 3b**, the first user **300** leaves the first client **301** and moves

to the location of the second client **306**. Once at the second client **306**, the first user

300 retrieves email from the email service **310**. The first user may retrieve email from

the email service **310** by any methods known in the art, such as but not limited to, using

the POP protocol, or through a web service.

The first user **300** at the second client **306** receives the email from the online

service provider **102**, containing the first GUID **320** corresponding to the first user **300**

and the URL to the web site **201** of the online service provider **102**. Once the first user

300 at the second client **306** receives the email, the first user **300** "clicks" on the URL to

the online service provider web site **201** and requests access to online service by

communicating with the web site **201**. Because the URL contains the first GUID **320** of

the first user **300**, the first user **300** is able to access all of the online credit card service

110 from the device of second client **306** without providing a logon Id and password pair

to the online service provider **102**, including the user's configuration setting. The URL

and the GUID are stored in the received email.

Optionally, if the first user **300** intends to utilize the device of second client **306**

for a period of time, the first user **300** may request that the first GUID **320** be deposited

on the browser application program **304** of the second client **306** as discussed with

respect to **Fig. 2**. The deposited GUID may be removed before the first user **300**

moves to another client device (not shown).

As those skilled in the art would appreciate, as long as the first user **300** leaves the email with the GUID in the email received device, the first user **300** may roam to another device, repeat the process, and have access to his/her subscribed services, including his/her preference on the manner the services are rendered.

As a result, a user is able roam from one client to another client and still benefit from the ability to access and utilize several online services without the need for a logon Id and password pair.

Additionally, if a client of a user, for whatever reasons, has to be reconfigured, under the invention, the user is still able to access online services (including his/her preferred configurations) through an online service provider without the need to provide a logon Id and password pair. Similar to the earlier described roaming scenario, upon reconfiguring the user's machine to a level of operation that includes the ability to access the email service having the email containing the GUID and the URL of the web site of the online service provider, the user accesses the email service and retrieves the email from the email service. Thereafter, the user is able to proceed to access his/her subscribed online services, through his/her reconfigured client, in the same manner described earlier for the roaming scenario.

Figure 4 is a flow chart according to one embodiment of the invention, illustrating a client subscribing with an online service provider for accessing one or more online services without the need for a logon Id and password pair with the roaming capability.

The first illustrated operation is the user initializing **400** the computing device. It is assumed that initializing includes all steps required to boot, wake from idle state, or otherwise start the computing device and configure it for accessing online services.

Assume that the computing device is a desktop personal computer executing the Microsoft Windows® operating system. After initialization, the user loads **402** a communication program through which to access online services.

It will appreciated that a number of environments may be used to be implement the communication program. For example, a dedicated / custom application program may be designed to access online services over a network. Alternatively, the communication program can be built using communication features provided by Internet web browser products, such as Microsoft Internet Explorer™, Netscape Navigator™, or Opera™. In this latter environment, the communication may be implemented in one of, or a combination of, Java, JavaScript, JavaBeans, ActiveX, Visual Basic, HTML, DHTML, or other Internet related programming "languages". It is assumed herein that the communication program is based on an Internet browser, and that traditional Internet related communication protocols (e.g., TCP/IP, http, etc.) are used to communicate online service providers over the Internet. As discussed with respect to **Fig. 2-3b**, the online service provider provides a web address to which a client can connect to access online services provided by the online service provider.

After communication program initialization, the computing device is used to subscribe **404** the user with a web site maintained by a online service provider. Note, however, that even though the illustrated embodiment requires subscription, it will appreciated that in other embodiment, such subscription need not occur first, or at all. To subscribe, the computing device contacts **406** the web site. In response the web site sends an acknowledgment **408**. Since an Internet browser is assumed in use, the contact is by way of directing the browser to an appropriate receiving port monitored by

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a web server of the online service provider. It is assumed that port 80, the traditional Internet communication port, is used for communication. In the web browser context, acknowledgment can be determined by receiving a "home page" or start page from the online service provider's web server.

If no acknowledgment is received, then a subscription error has occurred and processing of this subscription halts **412**. If acknowledgment is received, then the client tells the online service provider that it is interested in subscribing with the online service provider.

In one embodiment, the subscription process is automated, where the online service provider server (not shown) is configured to receive a subscription command from the client, and in response, the online service provider sends the client subscription forms to complete. For example, in response to the subscription command, an HTML form (or equivalent structure) containing fields for the user's name, address, request for roaming capability, email address, and so forth, is sent **414** to the client. This form (or equivalent structure) is completed **416** and returned **418** to an online service provider. In response to receiving the subscription data, the online service provider processes the received subscription data by correlating and associating an identifier of the user and the client, included within the received subscription data, with online service(s) selected by the user **420**.

Completion of the form can be automated, through automated parsing of the form to identify various fields to fill out. In one embodiment, the extensible markup language (XML) is used to encode forms with semantic meaning to facilitate automatic interpreting and completing of a form. In an alternate embodiment, the user is allowed

to review and complete a form with data known to the user, or the user can be provided with an opportunity to review and change a form completed by the computing device. In another embodiment, a special communication port, analogous to browser port 80, is used to send and receive subscription data.

Figure 5 illustrates the operational flow of the relevant aspects of the online service provider 102 for facilitating access to online services requiring logon configurations and roam from one device to another without having to manage several logon Ids and passwords, and configurations. As illustrated in Fig. 5, an online service provider receives a request from a client to access an online service, 510. Comprising the request is a globally unique identifier (GUID) of the client.

In response to the received GUID, the online service provider determines if the GUID is associated with a subscriber, 520. The online service provider associates the GUID of the client with the online services of the identified user based at least upon subscription data previously received when a user subscribed with the online service provider.

If the online service provider determines that the GUID is associated with a user, the online service provider facilitates access to the subscribed online service of the user without requiring logon Id and password pair, 530. Accordingly, a user can access the online services from other locations as well (i.e., roaming), or from a reconfiguration machine as well, thereby significantly improving the user friendliness of online service provider, and the user's productivity.

Figure 6 illustrates an example server suitable for use for online service provider 102 of Fig. 1, in accordance with one embodiment. As shown, server 600 includes one

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or more processors **602** and system memory **606**. Additionally, server **600** includes

mass storage devices **607** (such as diskette, hard drive, CDROM and so forth), GPIO

608 (for interfacing with I/O devices such as keyboard, cursor control and so forth) and

communication interfaces **612** (such as network interface cards, modems and so forth).

The elements are coupled to each other via system bus **614**, which represents one or

more buses. In the case of multiple buses, they are bridged by one or more bus bridges

(not shown). Each of these elements perform its conventional functions known in the

art. In particular, system memory **604** and mass storage **606** are employed to store a

working copy and a permanent copy of the programming instructions implementing

access to online services **110-111**. Except for its use to host the novel online service

provider of the present invention, the constitution of these elements **602-614** are known,

and accordingly will not be further described.

Certain embodiments may include additional components, may not require all of

the above components, or may combine one or more components. Those skilled in the

art will be familiar with a variety of alternative implementations.

In one embodiment, the invention, as described above, is implemented using one

or more computing devices such as the server of **Fig. 6**. In one embodiment, the

invention is implemented as software routines executed by one or more execution units

within the server(s). For a given server, the software routines can be stored on a

storage device, such as system memory **620**.

In one embodiment, the software routines are written in the C programming

language. It should be appreciated that the software routines may be implemented in

any of a wide variety of programming languages. In alternate embodiments, the

invention is implemented in discrete hardware or firmware. For example, one or more application specific integrated circuit (ASICs) could be programmed with one or more of the above described functions of the server **600**. In another example, one or more functions of the server **600** could be implemented in one or more ASICs on additional circuit boards, and the circuit boards could be inserted into the device(s) described above. In another example, field programmable gate arrays (FPGAs) or static programmable gate arrays (SPGAs) could be used to implement one or more functions of the invention. In yet another example, a combination of hardware and software could be used to implement one or more functions of the invention.

Accordingly, methods and apparatuses for a user to access online services requiring logon configurations and roam from one device to another without having to manage several logon configurations is described. While the present invention has been described in terms of the above illustrated embodiments, those skilled in the art will recognize that the invention is not limited to the embodiments described. The present invention can be practiced with modification and alteration within the spirit and scope of the appended claims. Thus, the description is to be regarded as illustrative instead of restrictive on the present invention.

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